

DIFFERENTIAL AMPLIFIERS USING ASYMMETRIC TRANSFER
CHARACTERISTICS TO SUPPRESS INPUT NOISE IN OUTPUT LOGIC
SIGNALS

ABSTRACT OF THE DISCLOSURE

An output amplifier is provided for use in a bidirectional communications interface, for example, connecting a transmitter and a receiver to a transmission line. The output amplifier includes a differential amplifier pair connected to output circuitry. The differential amplifier pair receives differential data signal pairs from each of a transmission line and a transmitter. The output circuitry receives signals from the differential amplifier pair and, in response, forms single-ended output logic signals. The output amplifier suppresses electronic input noise throughput using an asymmetric transfer characteristic that offsets output signal logic levels with respect to input noise signal levels. The asymmetric transfer characteristic is produced by skewing a transfer characteristic of the differential amplifier pair using an asymmetrical transistor configuration at an output side of the differential amplifier pair. The output logic signals represent data received on the transmission line, and are provided to the receiver.